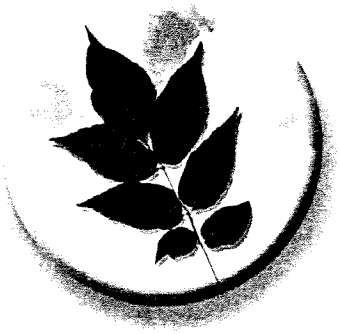
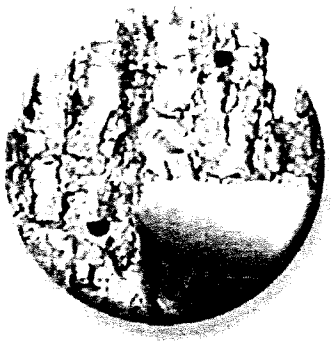
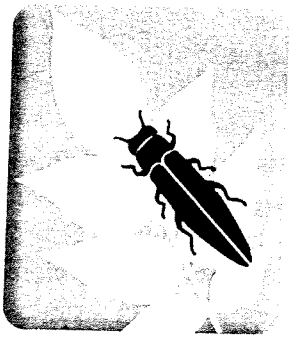






Michigan
Emerald Ash Borer
Response Project

Michigan Department of Agriculture
Michigan Department of Natural Resources
Michigan State University
U. S. Department of Agriculture

2004 Accomplishments

2005 Next Steps, Strategies, and Funding Needs

Executive Summary

Michigan is now in the second full year in its battle against Emerald Ash Borer (EAB). This invasive pest, discovered in the summer of 2002, continues its menacing campaign against the state's 700 million ash trees as well as ash resources in Ohio, Indiana and Ontario. While initially little was known about the beetle, the EAB multi-agency cooperative response project – encompassing the Michigan Departments of Agriculture (MDA) and Natural Resources (DNR), the U.S. Department of Agriculture (USDA) Animal and Plant Health Inspection Service and Forest Service, and Michigan State University (MSU) - has been able to make tremendous strides in learning more about the pest and its biology and also in survey/detection, containment, outreach and education efforts. Michigan is at the front line of this battle and continued funding of the EAB program is essential to protecting not only Michigan's ash resource, but also that of the entire North American continent.

The following is a brief summary and highlights of the many accomplishments achieved by the EAB project team this year.

Please don't hesitate to contact us with any questions or for additional details.

Sincerely,

Michigan
Emerald
Ash
Borer
Response Project

Office of Governor Jennifer M. Granholm
Patricia Lockwood, EAB Policy Director, 517/241-2576
Dan Beattie, Washington Office Deputy Director, 202/624-5840

Michigan Department of Agriculture
Dan Wyant, Director, 517/373-1052
Keith Creagh, Deputy Director, 517/335-3402
Christine White, Agriculture Policy Director, 517/335-3403
Kenneth Rauscher, Pesticide & Plant Pest Management Division Director, 517/373-4087

Michigan Department of Natural Resources
Arminda Koch, Resource Management Deputy, 517/373-0046

Michigan State University
Gary Lemme, Associate Director, Michigan Agricultural Experiment Station 517/355-0123

U.S. Department of Agriculture - Animal and Plant Health Inspection Service
Phillip Bell, Eastern Region Program Manager, 919/855-7312

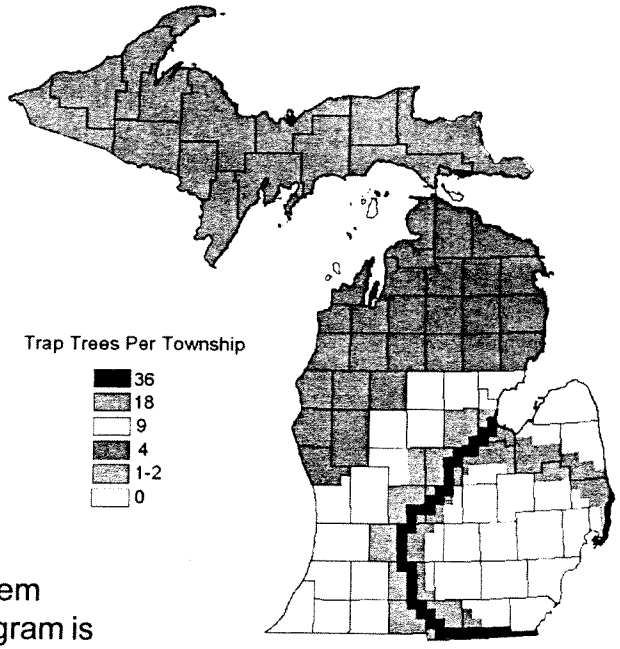
U.S. Department of Agriculture - Forest Service
Noel Schneeberger, Forest Health Program Leader, 610/557-4121

2004 Accomplishments

Detection/Survey Activities

The EAB response plan calls for continuous, large-scale survey efforts with two primary objectives: 1) determining the distribution of EAB in Michigan; and 2) detecting infestations and increasing early response capabilities outside the quarantined area.

2004 Michigan Department of Agriculture
Emerald Ash Borer Detection Tree Project
Detection Tree Densities



2004 highlights:

- Inspected 1,955 "high risk" sites, including nurseries, campgrounds, and sawmills.
- Surveyed and recorded 70,030 total visual survey data points covering 500,000+ acres.
- Received and responded to 3,355 calls via the state's toll-free EAB hotline, leading to 447 warranted follow-up investigations.
- Developed and implemented a statewide detection program to act as an early warning system for potential EAB infestations. The "trap tree" program is a significant improvement over visual surveys. Research indicated the trap trees would capture EAB adults present in an area, but would not lure the bug from long distances or create new infestations. Some key information from this effort included:
    - More than 10,000 trap trees were strategically located in every township at varying densities in each of Michigan's 83 counties, except those in the known generally infested area.
    - To date, EAB larvae and adults have been collected from approximately 150 trap trees, identifying seven new county infestations outside the 13-county quarantine and alerting Michigan officials to areas where containment and eradication efforts are needed. This is instrumental in quick state action to prevent the spread and minimize environmental/economic damage caused by EAB.

Regulatory Activities

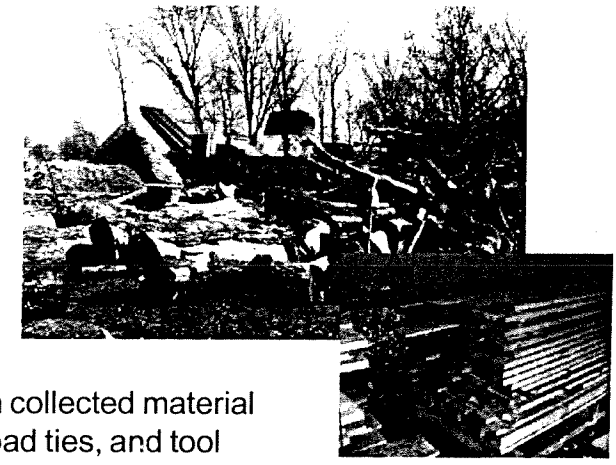
Preventing the artificial spread of EAB continues to be a top priority for the state. In 2004, MDA focused on enforcing the quarantine and increasing compliance. Regulatory activities included monitoring the movement of ash products, conducting regular inspections and investigations.

2004 highlights:

- Updated the quarantine based on survey data collection and analysis first on March 25, 2004 and again on August 15, 2004. This ensures the state's strategy and quarantine are responsive to changing information and founded on the best available science and data.
- Conducted enforcement activities involving quarantine violations. In 2004, 17 investigations of potential quarantine violations were initiated, with five leading to legal action or prosecution to date.
- Established firewood checkpoints along major interstates leading out of regulated areas during key travel holiday weekends, including Memorial Day and Labor Day, and again at the beginning of firearm deer hunting season. These events provided an opportunity for staff to have contact with thousands of travelers and confiscate illegally moved firewood.

Sanitation/Disposal Activities

The removal and disposal of EAB infested dead and dying ash trees is an important component in containing and reducing the spread of this destructive pest.

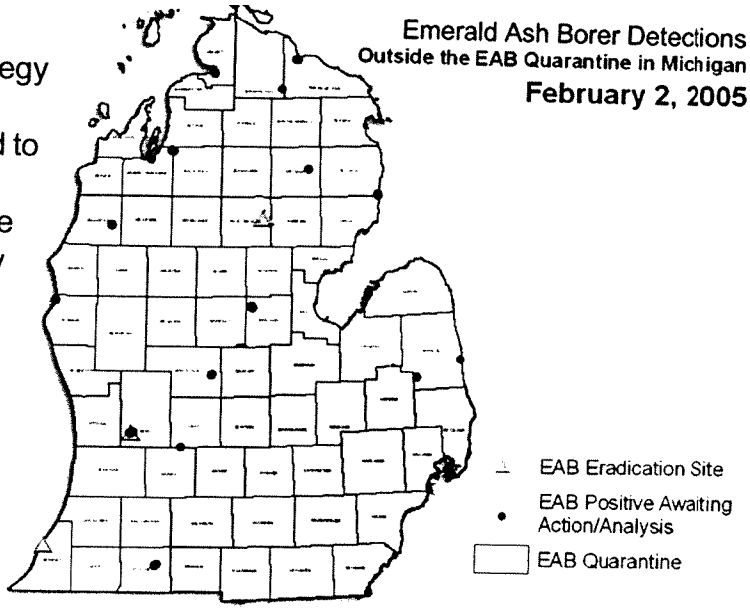


2004 highlights:

- Cut and properly disposed of approximately 192,000 infested or at-risk trees in outlier sites across the state.
- Continued or began operation of eight disposal sites in Southeast Michigan.
- Safely disposed of more than 200,000 tons of ash materials.
- Expanded approved "value added" activities to turn collected material into marketable ash products such as lumber, railroad ties, and tool handles. For example, a value-added outlet for disposal site logs is the Emerald Mills, Inc., sawmill in Flatrock, processing more than 6,000 logs to date.
- Continued review of additional wood processors to meet containment objectives, enhance quarantine compliance and provide community assistance.

Control/Eradication Activities

Michigan's EAB response and eradication strategy is based upon the recommendations of the national science advisory panel and is designed to adapt and evolve as new information becomes available. To contain and eventually eradicate the beetle, Michigan's EAB response team currently focuses on the following:



- Developing response strategies based upon site-specific information, including location, geography of the area and distribution of the pest.
- Removing all ash trees located within a ½-mile radius of the last known EAB infestation in an outlier area, thereby eradicating the insect and infestation.
- Conducting a 200-yard cut of ash trees in key control areas, thereby suppressing the infestation to minimize further spread.
- To date, Michigan has detected numerous isolated EAB infestations outside the known generally infested area where response and removal activity has taken place, is in process or will be scheduled soon. They have been prioritized base on: pest populations; location; risk of spread; and national/ international significance. (Locations include: Alcona, Berrien, Branch, Eaton, Emmet, Calhoun, Cheboygan, Gratiot, Hillsdale, Ingham, Kent, Manistee, Midland, Oceana, Ogemaw, Oscoda, Presque Isle, Roscommon, Saginaw, Sanilac, St. Clair, and St. Joseph counties). To date, this activity has impacted just under 8,300 property owners.

Research/Methods Development Activities

Very little was initially known about EAB when it was first discovered in Michigan in the summer of 2002 – only 1½ written pages were available. Since then, project partners and scientists have launched a concerted effort against the beetle through active research and methods development. These activities are key to understanding the patterns and biology of EAB, which in turn will aid containment and eradication efforts.

2004 highlights:

- Found larvae may take at least two years to develop in low-density EAB populations such as outliers or newly-infested trees. Results have critical implications for rate of spread, detection surveys, insecticide applications and evaluation of eradication activities.

- Compared response of EAB adult beetles, larvae and their location to girdled, wounded, herbicide-treated and healthy ash trees; collected and identified chemical compounds found in ash foliage; tested attractiveness of compounds to EAB adults; formulated and tested lures and trap combinations; and compared traps and lures. All are critical for advancing detection, survey and monitoring abilities.

- Used tree-ring analysis (dendrochronology) to estimate that three outlier sites detected in 2003 or 2004 first became infested in the mid to late 1990s; felled and peeled trees at certain outlier sites to gauge rate and range of spread, which were determined to be within 0.4 miles of initial source point. These activities are key to understanding EAB dispersal and responding accordingly.
- Conducted field and lab tests to determine if EAB would lay eggs and develop on alternate tree species and on North American species closely related to ash. Preliminary results indicate EAB will not be able to develop on alternate hosts, but relatives to ash require more study.
- Compared effectiveness of early summer versus mid-summer tree trunk injections of insecticide; assessed length of time the insecticide – imidacloprid - was effective in different tree tissues (xylem sap, leaves, phloem); compared effectiveness of trunk injection methods and products; and evaluated adult survival at different doses. These efforts are essential to determining whether chemical treatments will be effective, safe and provide project partners, communities and homeowners another response and eradication tool.

Outreach/Education Activities

Timely and clear communications, outreach and education are essential in every aspect of the state's EAB efforts. Increased public awareness and understanding enhances compliance with the quarantine and supports the state's survey, control and eradication efforts.

2004 highlights:

- Developed a detailed outreach and education system for each impacted area to outline the state's response plan and provide one-on-one question and answer opportunities for impacted residents and businesses. This includes a series of public meetings, media updates and 'tag alongs.'
- Maintained the EAB Communications Committee, whose membership includes communications and outreach professionals from each of the state's Cooperative Response Project partners to ensure coordinated and consistent information.

- Conducted an intensive public hearing and public input/comment process leading MDA to determine the beetle a Michigan public nuisance at control and eradication sites.
- Produced and disseminated numerous outreach and educational materials to stakeholders as well as provided regular updates and 'tag along' opportunities for statewide and regional media.
- Appointed 13 education outreach facilitators through MSU Extension in counties most impacted by EAB.
- Conducted legislative and local official tours as well as briefing sessions regarding the latest EAB news and efforts.
- Hosted numerous informational booths, educational seminars, workshops and group discussions at the state and national level, including a workshop for green industry professionals and local planners in February and a symposium in October.
- Initiated a major communications effort with a Governor Jennifer M. Granholm declaration of May 24-30 as "Emerald Ash Borer Awareness Week" as its centerpiece.
- Conducted a paid advertising campaign utilizing billboards along major northbound interstates, radio public service announcements, and other publications underscoring the "Don't move firewood" message.

Restoration

The overall objectives of the state's EAB restoration program are to support response/eradication efforts; and assist impacted communities and property owners to restore, maintain and protect the health and diversity of Michigan's forest resources.

2004 highlights:

- Provided 54 grants totaling more than $855,000 to communities within the 13 quarantined counties. More than 10,000 trees will be replanted through these grants.
- Provided 11 grants totaling more than $201,000 to communities located in EAB outlier areas throughout Michigan. More than 1,800 trees will be replanted through these grants.
- Assisted grant recipients with urban/community forestry management.
- Assisted property owners impacted by EAB through one-on-one technical assistance site visits, phone consultations and restoration educational materials.

Other 2004 Activities

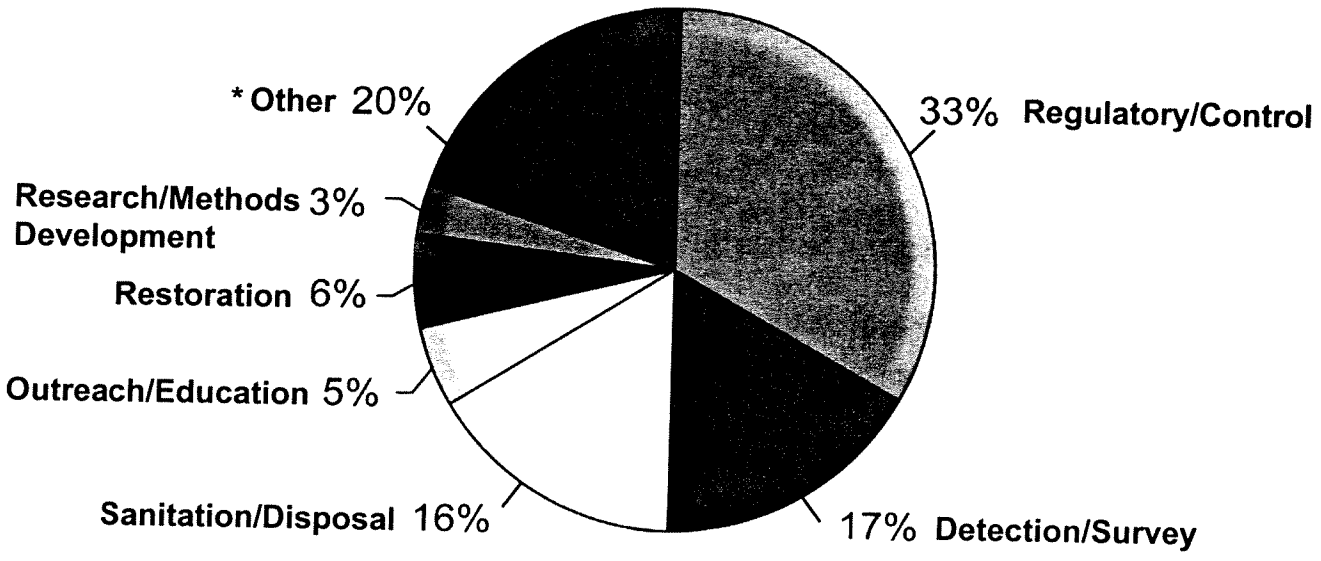
Additional activities were undertaken to help assist Michigan communities impacted by EAB.

2004 highlights:

- Developed and unveiled, via a partnership between MDA, the Governor's office and the Michigan Department of Management and Budget, a program helping to significantly reduce the cost of tree removal for communities and property owners in impacted quarantined counties.
- Administered a $1.2 million federal grant to help local units of government in Southeast Michigan most impacted by EAB to offset their ash tree removal costs in 2004. A total of 47 communities participated in the program, with just under 18,000 trees slated for removal.

2004 Emerald Ash Borer Funding

(February 1, 2004 to January 31, 2005)



* Other includes:

$1.2 Million EAB Tree Removal Grants to Southeast Michigan
$4.7 Million Ohio EAB Efforts
$2.1 Million Indiana EAB Efforts
$1.1 Million Maryland EAB Efforts
$700,000 Virginia EAB Efforts

Total = $48.4 Million

2005 Next Steps, Strategies and Funding Needs

Despite substantial progress in 2004, Michigan's challenges and the national fight against the Emerald Ash Borer are really just beginning. In 2005, Michigan's plan calls for the following actions to help ensure aggressive efforts to stem the spread of EAB and continue effective steps toward detection, containment, eradication and restoration:

Detection/Survey

- Use trap trees, visual survey and other monitoring techniques to determine distribution of EAB and help Michigan explore a "Reduced Ash Zone (RAZ)," a corridor across the state ahead of the leading edge of EAB where the least amount of ash can be found.
- Increase survey efforts in targeted areas throughout the northern and southwestern portions of the state with data contributing to the development of control strategies.

Regulatory

- Continue and enhance compliance within quarantined counties as well as at individual quarantined outlier sites through inspections, investigations, compliance agreements and enforcement actions.
- Increase and hold random firewood blitzes along targeted Michigan thoroughfares across the state to help ensure infested materials are not moving illegally.
- Continue and increase inspection of high-risk sites, especially saw mills and private campgrounds, across the state.
- Regulate commercial wood-hauling vehicles through partnership with Michigan State Police.
- Create an EAB inspection station at the Mackinac Bridge to prevent movement of any potentially infested ash materials into the Upper Peninsula.

Sanitation/Disposal

- Provide opportunities for homeowners, communities and tree maintenance companies to safely and properly dispose of their dead and dying ash trees through continued operation of the eight disposal sites.
- Implement additional disposal sites necessary to prevent further spread of EAB.
- Dispose of infested or at-risk ash trees removed from outlier containment and eradication sites.
- Encourage value-added activities to increase benefits and reduce ash material in the waste stream as well as operating costs.

Control/Eradication

- Conduct control and eradication activities through site-specific plans at outlier sites with special attention given to erosion control, residual damage and endangered species habitat. Methods will include tree removal, treatment or combinations of both, complemented by restoration in landscaped areas and management plan for woodlot operators.

- Place highest priority on complete eradication of EAB at outlier sites occurring outside the quarantined area. Monitor regulated materials at and around such areas to ensure compliance with quarantine provisions.
- Control pest populations found near the RAZ and eradicate those found in or beyond the RAZ to prevent EAB spread.
- Develop, in cooperation with industry, opportunities for pre-harvest and value-added products to facilitate property owner participation in ash tree removal within targeted management areas.

Research

- Improve efficiency of traps and trapping protocols for detection, evaluation of eradication success and related monitoring needs.
- Continue to evaluate and model the rate of spread in sites with low-density EAB populations and in the heavily infested area; assess and determine specific factors associated with EAB spread.
- Continue to evaluate native predators and other biocontrol organisms as well as those from EAB's native areas that may affect the pest and assess their use in Michigan and the country.
- Continue to evaluate insecticide products for use and efficacy.
- Identify factors that determine whether the EAB life cycle lasts for one, two or three years and assess factors that limit or enhance EAB abundance and reproduction.
- Determine ecological impacts of widespread ash mortality in forested settings; quantify economic costs and social impacts related to mortality of ash shade trees as well as potential loss of black ash on Native American tribes utilizing this resource.
- Identify and continue to develop value-added uses and markets for ash, including small trees and less desirable ash species.
- Assess effectiveness of restoration programs in restoring and increasing diversity the urban forest canopy.

Outreach/Education

- Continue outreach and education system of public meetings and direct mailings for each outlier area as well as EAB seminars, booths, workshops, discussions and tours statewide.
- Maintain and enhance an integrated and comprehensive EAB online clearinghouse/web site for citizens and stakeholder to get up-to-date information; include a component for password-protected Intranet functions to help facilitate communications among EAB project partners.
- Implement an expanded communications campaign based on thorough analysis of demographics, reach, and various tools and mediums to help raise awareness of EAB, the importance of the quarantine and project partner activities.
- Continue support, development and dissemination of EAB communications and outreach/educational materials.
- Provide operational support for MSU Extension offices and county experts to ensure grass roots outreach to impacted communities.

Restoration

- Help replace tree canopy cover at outlier sites and in targeted management areas.
- Conduct forest health monitoring by establishing a baseline condition of forests where EAB has been established as well as documenting the rate of change and the state of forest stand composition and structure.
- Provide technical support and assistance for landowners through partnerships with conservation districts and non-profit organizations.

Michigan Emerald Ash Borer Response Project

Cooperating Agencies Projected Budget for 2005

Agency	*Amount*
Michigan Department of Agriculture	**$ 25,000,000**
Survey	$ 4,556,583
Control Activities	$ 14,483,051
Data Management	$ 390,146
Outreach (includes MSU component)	$ 1,570,630
Regulatory Activities	$ 3,999,590
Michigan Department of Natural Resources*	**$ 3,500,000**
Survey Outreach	$ 1,000,000
Restoration	$ 2,500,000
Michigan State University*	**$ 1,000,000**
Research & Methods Development	
Sub-Total US Forest Service Service Funding*	**$ 4,500,000**
TOTAL '05 FUNDING REQUEST	**$ 29,500,000**

Conclusion

Michigan did not volunteer to be the frontline of defense against this invader, but is now engaged in a battle to save the ash resource within our borders and our nation.

Many notable successes have been achieved to date in this battle, though many significant challenges remain. Continued financial support and resources, collaboration, sound science, innovation and cooperation are critical for the success of Michigan and the country in stopping Emerald Ash Borer.

Michigan Emerald Ash Borer Response Project

Michigan Department of Agriculture
Michigan Department of Natural Resources
Michigan State University
U. S. Department of Agriculture

www.emeraldashborer.info